



3747

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Handwritten initials

Takashi SUZUKI

Group Art Unit: 3747

Application No.: 09/987,411

Examiner: Not yet assigned

Filed: November 14, 2001

Docket No.: 110648

For: CRANKING-CAUSED VIBRATION SUPPRESSING APPARATUS AND METHOD FOR
INTERNAL COMBUSTION ENGINE

INFORMATION DISCLOSURE STATEMENT

RECEIVED

MAY 21 2003

TECHNOLOGY CENTER R3700

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. Unless otherwise indicated herein, one copy of each reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.
- ☒ 2. The references were cited in a counterpart foreign application. An English language version of the foreign search report is attached for the Examiner's information.
- ☒ 3. A concise explanation of the relevance of the non-English language references appears in the Appendix attached hereto.
- ☒ 4. English-language Abstracts of the non-English language references are attached hereto.

Respectfully submitted,

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Translation of Foreign Search Report

[Brief Explanation of "Notice of Rejection Reason" issued by JPTO]

The Examiner resumes that the invention related to the following described claims of this application can be easily achieved for a person having ordinary skill in the art to which the subject matter pertains, because the related art had been published in Japan or foreign countries before the application was applied to the JPTO.

- 1) Claims 1 and 3 were disclosed by the references No. 1 or 2.
- 2) Claims 2 was disclosed by the references No. 1 or 2, and 3.
- 3) Claims 4 was disclosed by the references No. 1 or 2, and 4.
- 4) Claims 5 was disclosed by the references No. 1 or 2, and 5.

No. 1: JP(a) 11-336581

No. 2: JP(A) 2000-115911

No. 3: JP(A) 2002-510007 (WO99/50084)

No. 4 : JP(A) 11-082261

No. 5: JP(A) 11-113220

List of Related Art for IDS

Patent	File Date	Issue Date	Comments
JP (A) 11-336581	25/05/1998	07/12/1999	In a control device for hybrid vehicle, an ECU approximately calculates torque fluctuation generated in an engine-output shaft using tertiary or less components of sine function in relation to the order of torque fluctuation due to compression, expansion in the engine. The ECU adds the calculated torque fluctuation to a torque command value of an electric motor in an anti-phase to correct the torque fluctuation value. Then, the torque fluctuation generated in the engine output shaft is absorbed and smooth travelling of the hybrid vehicle is realized.
JP (A) 2000-115911	02/10/1998	21/04/2000	A controller for a hybrid vehicle suppresses vibration to be generated at the time of an engine start, by giving torque of a motor which cancels torque pulsation in a rotation range where torque pulsation is generated. Furthermore, the controller suppresses vibration and enhances the operability at the time in the other range, by controlling a rotating speed of the motor. Then, at the time of the engine start, the engine swift start can be realized and the vibration can be reduced.

JP (A) 2002-510007 International Publication No. is WO99/50084	31/03/1999	02/04/2002	In a hybrid vehicle with a electric motor and an internal combustion engine, a propulsion system is configured in such a way that the vehicle is started as follows: 1) first the vehicle is accelerated only by the motor; 2) in the meantime the engine is started; 3) the engine takes over the propulsion of the vehicle. To avoid jerky coupling of the engine during steps 1) to 3), either a) the engine is dragged while the motor accelerates the vehicle, or b) the engine is revved in preparation for starting while de-coupled from the propulsion system and then coupled to the propulsion system when the rpms are synchronous.
JP (A) 11-082261	29/08/1997	26/03/1999	A control device is provided with a stand-by control mean that controls to rotate an engine to a cranking start position by previously transmitting a power of a motor generator to the engine by controlling an engaging pressure of a clutch to fix cranking characteristics when starting the engine to improve starting response when shifting from the motor generator running to the engine running. Then, starting response and reduced decelerating shock of the hybrid vehicle with the motor generator and the engine can be improved.

JP (A) 11-113220	06/10/1997	23/04/1999	<p>A motor-generator is installed on a side wall of a cylinder block of an engine. A gear shaft linked with the motor-generator is arranged parallel with a crankshaft. Helical gears are installed on both sides of the gear shaft, and each of the helical gears is engaged with a driving gear installed on the crankshaft side. The torque of the crankshaft is directly input in the motor-generator via two pairs of gears. By adjusting the control torque of the motor-generator, torque change can be reduced. Then, the generation of roll vibration or the like can be prevented.</p>
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